

10/788,848

REMARKS

Claims 1-8 and 15-17 are currently pending in the subject application. In this Amendment "C", Applicant has amended claim 1. Applicant hereby respectfully requests reconsideration of the subject application.

The Examiner has objected to claim 1 for having a typographical error. Applicant has amended claim 1 to correct this error.

The Examiner has rejected claims 1-3, 5-8 and 15-17 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,244, 157 to Brundiek in view of U.S. Patent No. 4,717,804 to Vendelin et al.; U.S. Patent No. 4,798,342 to Williams; and U.S. Patent Application No. 2004/0148078 to Nakano et al. The Examiner has further rejected claim 4 under 35 U.S.C. §103(a) as being unpatentable over the Brundiek patent, the Vendelin et al. patent, the Williams patent, the Nakano et al. patent and further in view of U.S. Patent No. 6,295,851 to Sjostrom. For purposes of brevity, Applicants will not repeat the arguments made in their Amendment "B" filed on March 16, 2006, but hereby incorporates them by reference.

Applicant submits that the Examiner has failed to establish a *prima facie* case of obviousness in rejecting the claims because, *inter alia*, the cited references fail to teach or suggest all the claim limitations. None of the references cited by the Examiner disclose a computing device that is used with a roll-bowl type mill to perform data collection and frequency power spectrum analysis of a roller assembly of the mill to determine: (a.) the diameter of the rollers (independent claim 1), wear of the rollers (independent claim 7), or a thickness of the fuel being crushed (independent claim 8).

10/788,848

The Examiner cites the Nakano et al. patent as disclosing the use of frequency power spectrum analysis to analyze data from a displacement sensor. The Nakano et al. patent, however, fails to show or suggest using frequency power spectrum analysis in a roll-bowl type mill, let alone using frequency power spectrum analysis to determine the diameter of rollers, wear of rollers, or thickness of fuel. This is not surprising considering how the Nakano et al. patent is non-analogous art relating to automotive steering. In this regard, it is noted that the Examiner has not specifically addressed the legal requirements set forth in MPEP §2141.01(a) for using prior art. As set forth in the prior amendment by the Applicant, the Nakano et al. patent is unquestionably not in the field of applicant's endeavor. The Nakano et al. patent is also not pertinent to the particular problem with which the Applicants were concerned. Using frequency power spectrum analysis to analyze data from a displacement sensor is not the problem the Applicant's were concerned with, and, for that matter, is not the problem that the inventors of the Nakano et al. patent were concerned with either. Rather, in both cases, frequency spectrum analysis was part of the solution. The problem confronted by the inventors of the Nakano et al. patent was controlling the steering of a car, whereas the problem confronted by the Applicants was monitoring the operation of a fuel pulverizing mill.

The Examiner admits that the Nakano et al. patent fails to show or suggest using frequency power spectrum analysis to determine the diameter of rollers, wear of rollers, or thickness of fuel in a roll-bowl type mill. Presumably, the Examiner cites the Vendelin et al. patent as teaching using a transducer (25) to measure the wear of a

10/788,848

mill and reasons that it would have been obvious to use power spectrum analysis (as taught by Nakano et al. patent) on the output of the transducer 25 to determine the diameter of rollers, wear of rollers, or thickness of fuel in a roll-bowl type mill. (Note: If this is not the correct interpretation of the Examiner's position, Applicant respectfully respects clarification of the Examiner's position so that the Applicant can properly frame the issue in Applicant's Appeal Brief.) There are several problems with this reasoning. *First, there is nothing in the Vendelin et al. patent that discloses the transducers 25 as being used to measure wear.* In fact there is nothing in the Vendelin et al. patent that discloses how wear is measured. *Second, the transducers 25 in the Vendelin et al. patent are not disclosed as measuring vibration or oscillation.* Rather, the transducers 25 are only disclosed as measuring the gap or distance between a mantle 13 and a liner 12. Once again, how can power spectrum analysis be performed on a distance measurement? The Examiner states that the measurement of the gap is oscillatory, but this is mere speculation on the part of the Examiner. There is nothing in the Vendelin et al. patent that discloses or suggests that the measurement of the gap is oscillatory. In fact, if a true oscillatory measurement was produced, how could the distance of the gap be measured? There may very well be an oscillatory component of the gap measurement due to the vibration of the crusher, but this oscillatory component at most would represent a standard error in the measurement that is probably filtered out. The undisputable fact is that the purpose of the transducers 25 is to measure distance and not vibration.

10/788, 848

Since the Vendelin et al. patent fails to disclose using a transducer to measure wear of a mill or even to measure oscillation and the Nakano et al. patent only discloses using power spectrum analysis to control the steering of a vehicle, it is manifestly clear that the Vendelin et al. patent and the Nakano et al. patent fail to even remotely suggest providing the mill of the Brundiek et al. patent with a computing device that performs frequency power spectrum analysis of a roller assembly of the mill to measure wear of the mill, let alone to measure the diameter of rollers, wear of rollers, or thickness of fuel in the mill, as required by the claims.

With regard to the limitations in the claims concerning the determination of the diameter of the rollers, wear of the rollers and fuel thickness using formulas, the Examiner initially relied on an inapplicable case (*In re Boesch*) to summarily dismiss these limitations. In the final Office action, the Examiner now characterizes these limitations as calling "*for a computer capable of using a formula such as the one recited if such a formula is provided to the apparatus*". With this characterization, the Examiner presumably finds any general purpose computer as meeting the recited limitations. The Examiner's characterization and interpretation of these limitations is incorrect and not in accord with established patent law. The claims recite (with emphasis added) a "computing device *operable to* perform data collection and frequency power spectrum analysis... to determine...*using a formula...*". In this regard, it should be noted that the phrase "*operable to*" has been found to be equivalent to the phrase "*configured to*". See *Collaboration Properties Inc. v. Tandberg*

10/788, 848

ASA and Tandberg, Inc., 2006 WL 1752140 (N.D. California). Thus, the claims recite a computing device that is operable (or configured or programmed) to carry out a particular formula or algorithm. A computing device that is operable to perform an algorithm is structurally different than a computing device that is not operable to perform the algorithm. This is established patent law. As is best summarized by the Federal Circuit (with emphasis added):

The structure of a microprocessor programmed to carry out an algorithm is limited by the disclosed algorithm. A general purpose computer, or microprocessor, programmed to carry out an algorithm creates "a new machine, because a general purpose computer in effect becomes a special purpose computer once it is programmed to perform particular functions pursuant to instructions from program software." *In re Alappat*, 33 F.3d 1526, 1545, 31 USPQ2d 1545, 1558 (Fed.Cir.1994) (en banc); see *In re Bernhart*, 57 C.C.P.A. 737, 417 F.2d 1395, 1399-1400, 163 USPQ 611, 615-16 (CCPA 1969) ("[I]f a machine is programmed in a certain new and unobvious way, it is physically different from the machine without that program; its memory elements are differently arranged."). The instructions of the software program that carry out the algorithm electrically change the general purpose computer by creating electrical paths within the device. These electrical paths create a special purpose machine for carrying out the particular algorithm. *WMS Gaming, Inc. v. International Game Technology*, 184 F.3d 1339 at 1348 (Fed. Cir.1999)

Thus, the Examiner's assertion that he does not need to consider the formulas in an apparatus case is simply wrong. Pursuant to established case (such as the case identified above), the Examiner must consider the formulas recited in the claims.

Based on the foregoing, it is respectfully submitted that the Examiner has failed to establish a *prima facie* case of obviousness and, thus, the final Office rejection should be withdrawn.

10/788,848

If there are any additional fees resulting from this communication, please charge same to our Deposit Account No. 050877.

Respectfully submitted,
ABB Inc.

By: 
Paul R. Katterle, Reg. No. 36563

October 25, 2006
ABB Inc.
29801 Euclid Avenue-4U6
Wickliffe, Ohio 44092-2530
(440) 585-7968